

Progress in the Prevention and Control of
Air Pollution in 1979

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PROGRESS IN THE PREVENTION AND
CONTROL OF AIR POLLUTION IN 1979

ANNUAL REPORT OF THE ADMINISTRATOR
OF THE ENVIRONMENTAL PROTECTION AGENCY
TO THE
CONGRESS OF THE UNITED STATES
IN COMPLIANCE WITH
SECTIONS 313, 202, 306(e), and 127(b)
OF

PUBLIC LAW 91-604
THE CLEAN AIR ACT, AS AMENDED

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PREFACE

The Clean Air Act, as amended, authorizes a national program of air pollution research, regulation, and enforcement activities. This program is directed at the Federal level by the U.S. Environmental Protection Agency (EPA). However, primary responsibility for the prevention and control of air pollution at its source continues to rest with state and local governments. EPA's role is to conduct research and development programs; set national goals (via standards and regulations); provide technical and financial assistance to the states; and, where necessary, supplement state implementation programs.

Section 313 of the Clean Air Act requires the Administrator to report yearly on measures taken toward implementing the purpose and intent of the Act. This report covers the period January 1 to December 31, 1979, and describes the issues involved in the prevention and control of air pollution and the major elements of progress toward that goal that have been made since the last report. In addition, this report also includes three other EPA reports to Congress required under the Clean Air Act, as amended:

1. Section 202 report on measures taken in relation to motor vehicle emission control (Chapter VI);
2. Section 306(e) report on Federal procurement and violating facilities (in Chapter VII); and
3. Section 127(b) report on major emitting facilities (in Chapter IV).

I. INTRODUCTION AND SUMMARY

AIR QUALITY TRENDS

The national average ambient total suspended particulate (TSP) levels dropped approximately 10 percent from 1972 to 1978. Ambient levels of sulfur dioxide (SO_2) dropped 22 percent from 1972 to 1978. Carbon monoxide (CO) levels were reduced 35 percent from 1972 to 1978. While there was no predominant trend for ozone (O_3), areas which showed change over the five-year reporting period tended to show recent increases. Nitrogen dioxide (NO_2) showed an increase of 1 percent per year for 1974 to 1978. Ambient levels of lead (Pb) near EPA monitors dropped 26 percent between 1970 and 1977.

DEVELOPMENT OF AIR QUALITY CRITERIA AND STANDARDS

EPA promulgated a national ambient air quality standard (NAAQS) for ozone (O_3) on February 8, 1979. The level of both the primary (health) and secondary (welfare) standard was changed from 0.08 to 0.12 ppm and the chemical designation was changed from photochemical oxidants to ozone.

STATUS OF STATE IMPLEMENTATION PLANS (SIPs)

To comply with the Clean Air Act's Part D (nonattainment areas), 50 of the 51 states and territories needing plan revisions made submittals in 1979; 39 of these were complete plan revisions while 11 were partial.

On December 11, 1979, EPA published a policy to allow plants to reduce control where costs are high in exchange for an equivalent increase in control where abatement is less expensive (bubble concept).

EPA's June 1978 prevention of significant deterioration (PSD) regulations were overturned in part in June 1979 by a preliminary opinion of the U.S. District Court of Appeals for the District of Columbia (Alabama Power et al). The Agency then proposed amendments to the PSD

regulations in September 1979 which, among other things, involve changes in the basic criteria for determining which new or modified air pollution sources are subject to the regulations, the requirements for air quality monitoring, and BACT applicability.

CONTROL OF STATIONARY SOURCES

During 1979, a new source performance standard (NSPS) was promulgated for stationary gas turbines; a Section 111(d) standard was promulgated for kraft pulp mills. The NSPS for utility steam generators was revised in 1979. Standards were proposed for seven additional categories: glass manufacturing, internal combustion engines, phosphate rock preparation, aluminum plants [Section 111(d) standard], automobile surface coating, lead battery manufacture, and ammonium sulfate production.

EPA proposed a "Policy and Procedures for Identifying, Assessing, and Regulating Airborne Substances Posing a Risk of Cancer."

Significant research efforts in support of the regulatory process were initiated and carried out in 1979 for nitrogen oxides (NO_x), sulfur oxides (SO_x), and particulate matter (PM). These included research dealing with low NO_x coal burners, NO_x control technology, flue gas desulfurization, dry SO_x control processes, and inhalable particulate matter.

CONTROL OF MOBILE SOURCE EMISSIONS

During 1979, EPA promulgated a rule providing for a 90 percent reduction in model year 1984 heavy-duty truck HC and CO emissions.

EPA made major changes in its pre-production certification review program in 1979. These changes will allow EPA to concentrate on those engine families with the greatest air quality impact while simultaneously reducing the paperwork involved for both EPA and the automobile manufacturers.

Six states had operating automobile inspection/maintenance (I/M) programs by the end of 1979. Approximately 50 metropolitan areas in 29 states will have to implement I/M programs.

Preliminary work was begun in 1979 on the potential health threat posed by diesel engines. Preliminary studies have indicated that particulate emissions in diesel exhaust contain carcinogenic materials.

ENFORCEMENT

Stationary Source Enforcement

EPA devoted a great deal of effort in 1979 to the development of regulations, both for noncompliance penalties (Section 120) and for primary nonferrous smelter orders (Section 119).

During 1979, EPA initiated 76 major source enforcement effort (MSEE) civil actions and 9 non-MSEE civil actions. In addition, 65 MSEE and 4 non-MSEE civil actions were concluded in 1979.

In addition, in 1979, EPA reached important pollution control agreements with U.S. Steel, Crucible Steel, the Tennessee Valley Authority, Wheeling-Pittsburgh Steel Corporation, and thirteen additional companies or facilities.

Mobile Source Enforcement

During FY 1979, 1.8 million vehicles were recalled, either by EPA order or as a result of an EPA investigation; during that same period, 100,000 vehicles were voluntarily recalled by manufacturers to correct emissions problems.

In FY 1979, EPA conducted approximately 15,000 inspections of service stations to ensure compliance with the unleaded fuel regulations. For this period, EPA issued approximately 280 complaints and collected \$240,000 in penalties.

Forty-three tampering litigation reports were referred to the Department of Justice in FY 1979. Civil penalties of \$32,320 were collected under tampering case settlements and judgments in that period.

Federal Facilities

Of the 49 non-complying Federal facilities, 7 have installed the necessary air pollution control equipment, 15 are in the process of

installing control equipment, and 27 have plans to correct their pollution problems.

List of Violating Facilities

The listing procedure prevents Air and Water Act violators from receiving Federal contracts, grants, or loans. Although no additional Air or Water Act violators were listed in 1979, listing proceedings were initiated by EPA with respect to 3 facilities. One facility was removed from the list when it reached a compliance agreement with EPA.

LITIGATION

On June 18, 1979, the U.S. Circuit Court of Appeals for the District of Columbia issued a preliminary opinion in the PSD litigation. The opinion upheld in part and remanded in part EPA's regulations. The Court upheld provisions dealing with periodic increment review programs, stack height limitations for PSD purposes, and EPA's guidelines for modeling sources. The Court remanded provisions dealing with source size, definition of source, fugitive emissions, geographic applicability, modifications, preconstruction monitoring, and baseline data. The final opinion issued on December 14, 1979 reaffirmed all but two of the fundamental holdings in the June summary opinion. Those dealt with geographic applicability and monitoring.

Three circuits of the U.S. Court of Appeals have ruled and split on the procedural validity of EPA's March 3, 1978 promulgation of attainment status designation. The Third and Fifth Circuits found that EPA did not show "good cause" for dispensing with prior notice and comment. The Seventh Circuit, however, found that EPA had good cause to promulgate before taking comment because the Clean Air Act established a strict time schedule for the designation process. The Supreme Court has left the conflict among the circuits unresolved.

II. AIR QUALITY TRENDS

AIR QUALITY TRENDS

Overall, the nation's air quality is improving although substantial portions of the nation are classified as nonattainment areas for each of the national ambient air quality standards (NAAQS) pollutants. Long-term progress is seen for total suspended particulate (TSP), sulfur dioxide (SO_2), carbon monoxide (CO), and lead (Pb). The trend for ozone (O_3) for the nation as a whole has been stable. Nitrogen dioxide (NO_2) levels have been increasing slightly.

Ambient TSP levels dropped approximately 30 percent between 1960 and 1978 throughout the nation. From 1972 to 1978, the national average dropped approximately 10 percent. Nationwide particulate emissions from stationary sources decreased more than 40 percent between 1970 and 1978. Substantial decreases in industrial emissions have a lesser impact on ambient levels due to the contribution of fugitive dust.

Sulfur dioxide ambient levels in urban areas improved dramatically between 1964 and 1977 with levels dropping 65 percent. Most of the improvement took place in the late 1960's. From 1972 through 1978, the national average SO_2 levels dropped 22 percent. The sulfur oxide (SO_x) emissions trend improvement was much less pronounced with an estimated decrease of approximately 10 percent between 1970 and 1978. The difference in the rate of improvement in ambient levels versus emission trends is partly attributable to the spatial distribution of sources. SO_x emissions were reduced in urban areas and new sources were located in more rural areas.

Ambient CO levels in center-city locations have shown a steady decline at the rate of 7 percent per year with an overall reduction of 35 percent in ambient levels from 1972 to 1978. The greatest improvements have occurred at sites traditionally having the worst CO problem. CO emission trends are affected by changes in CO emissions per vehicle mile and in changes in the number of vehicle miles travelled each year.

Estimates of national emissions of CO from highway vehicles show a 7 percent increase since 1970 largely due to a 30 percent increase in total vehicle miles travelled (VMT). If vehicle miles travelled had remained constant at the 1970 level, the nation would have experienced a 25 percent decrease in CO emissions.

The observed improvements in ambient CO levels should be viewed in terms of the balance between decreases in emissions per mile and increases in VMT. The majority of CO sites with sufficient historical data for trends would be expected to be in center-city locations. Since these locations may already be traffic-saturated, a VMT increase would not occur in the immediate vicinity of the site. In other words, the ambient CO trends may be more indicative of situations in which there has been no growth in traffic. Nonetheless, sites in traffic-congested areas would be expected to record high CO concentrations that need to be reduced.

For ozone, 32 air quality control regions (AQCRs) with 5 complete years of summertime data were examined. While no predominant trend was observed over the five-year period, there was a tendency for areas exhibiting change to be on the increase in the most recent three-year period. After many years of showing improvement, the Los Angeles Basin measured a sharp increase in ozone levels in 1978. The increase cannot be explained as solely due to meteorology. Both the effects of tampering with automotive emission control devices and fuel switching could be responsible for the increased ozone levels. Nationally, vehicle miles travelled have increased 30 percent between 1970 and 1978 and 20 percent between 1974 and 1978. This has offset the expected decrease in volatile organic compound (VOC) emissions between 1974 and 1978. The net effect has been a 3 percent increase in VOC emissions between 1974 and 1978. The trend in VOC emissions is consistent with the national ozone trend.

Nitrogen dioxide composite levels at 91 sites in 33 urbanized areas show an increase at the rate of 1 percent per year from 1974 to 1978. Total nitrogen oxides (NO_x) emissions have shown an increase of 6 percent between 1974 and 1978. NO_x emissions from transportation

increased 8 percent while stationary source emissions increased about 5 percent. The stable pattern in NO_x emissions since 1973 generally agrees with ambient NO_2 levels. Only three areas--Southern California, Denver, and Chicago are in violation of the annual NO_2 standard.

Ambient lead levels in the vicinity of EPA monitors improved dramatically between 1970 and 1977, dropping 26 percent. This decrease is consistent with the 30 percent decrease in lead consumed through gasoline sales over the same period. Vehicle emissions account for more than 88 percent of the total lead emissions.

AIR QUALITY MONITORING

A streamlined, high quality, more cost-effective national air monitoring program is being established through the regulatory changes promulgated by the Environmental Protection Agency on May 10, 1979. This should improve the nation's ambient air quality monitoring programs for the NAAQS pollutants--total suspended particulate (TSP), sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), and lead (Pb).

The revisions promulgated after consultation with the states will:

- Set stringent requirements for a refined national monitoring network in areas with high population and pollutant concentrations to provide a sound data base for assessing national trends;
- Give the states flexibility to use resources freed from State Implementation Plan (SIP) monitoring work to meet their own needs;
- Establish uniform criteria for siting, quality assurance, equivalent analytical methodology, sampling intervals, and instrument selection to assure consistent data reporting among the states;
- Establish a standard national pollutant reporting index and require it for major metropolitan areas; and
- Provide precision and accuracy estimates with the air quality data to enable better interpretation of data quality.

The promulgated revisions have been designed to correct monitoring program deficiencies identified by a Federal-state-local working group established by EPA in October 1975. In addition, the changes will carry out the mandate for establishing a uniform national network required by Section 319 of the Clean Air Act Amendments of 1977.

III. DEVELOPMENT OF AIR QUALITY CRITERIA AND STANDARDS

INTRODUCTION

Air quality criteria documents were issued for particulate matter (PM), sulfur oxides (SO_x), hydrocarbons (HC), photochemical oxidants (O_x), carbon monoxide (CO), and nitrogen oxides (NO_x) from January 1969 through January 1971. On April 30, 1971, after these criteria were issued, EPA established primary and secondary national ambient air quality standards (NAAQS) for these pollutants.

On September 14, 1973, EPA revised the secondary standard for sulfur dioxide (SO_2) by revoking the annual secondary standard (the three-hour standard remains) and revising the air quality criteria for SO_x . The maximum 24-hour concentration published as a guide for the development of State Implementation Plans (SIPs) was deleted.

EPA promulgated the NAAQS for lead in October 1978 in response to the court order in NRDC et al. vs. Train. The standard, which had been proposed in December 1977, was set at $1.5 \mu\text{g Pb/m}^3$, with averages to be calculated over a calendar quarter. The standard is especially significant because it establishes a precedent as the first NAAQS for a multi-media pollutant.

On February 8, 1979, EPA promulgated the NAAQS for ozone (O_3). The level of the primary (health) and secondary (welfare) standard was changed from 0.08 to 0.12 parts per million and the chemical designation of the standard was changed from photochemical oxidants to O_3 .

Throughout 1979, EPA continued its review of the NAAQS for CO, NO_x , SO_x , PM, and HC, with a view to revising the standards where necessary. The Agency has now completed reviewing air quality criteria for CO and is planning to announce a rulemaking proposal on CO early in 1980. The task of evaluating the short-term effects of nitrogen dioxide started in November 1977 and has since been combined with general revision of the

air quality criteria for NO_x, with the NO_x criteria document now in preparation. Work has also been proceeding on revising the criteria for SO_x and PM. Finally, EPA is reviewing the health criteria for HC. Review of the NAAQS is scheduled for completion by December 1980.

HEALTH EFFECTS RESEARCH

The health effects research program is divided into three program components: criteria pollutants, noncriteria pollutants, and transportation sources. The program incorporates epidemiological studies, human volunteer (clinical) studies, and animal toxicological studies, focusing on those air pollutants that are known or suspected to harm public health.

Criteria Pollutants

In this area, studies are conducted on the air pollutants for which NAAQS have been set. Results of these studies are used to evaluate the adequacy of existing ambient air quality criteria and to provide a scientific basis for improving these criteria. The Clean Air Act Amendments of 1977 require that the ambient criteria and NAAQS be reviewed and, where appropriate, revised at five-year intervals.

In 1979, the major accomplishments in the criteria pollutants area included:

- Completion of short-term and intermittent animal exposure studies which assess the health effects of repeated exposures to ozone and nitrogen oxides. These effects include impairment of host pulmonary defense mechanisms which are important for clearance of harmful agents, such as bacteria, from the lung. Impairment of these mechanisms increases susceptibility to infectious disease. Further study is planned to validate and refine the initial findings.
- Development of techniques to measure health effects parameters, such as pulmonary functions in animals, which are evaluated in human exposure (clinical) studies. These techniques, when fully developed, will allow better comparison of animal and human responses to pollutants.

- Realignment of clinical studies to extend experiments on effects from ozone exposures to include the initiation of experiments on effects from nitrogen dioxide exposures. This realignment was necessary to include more volunteers and to use familiar studies for standardization while incorporating new computerized systems. Results to date show that exercise which increases rate and depth of respiration is a major determinant of pulmonary physiological response (impairment) to ozone and nitrogen dioxide. This finding implies that persons exercising in the presence of these pollutants are subject to greater harm than those resting. Further studies are required to correlate levels of exposure with degree of impairment in both healthy persons and those at risk.
- Discovery of immunological effects in humans exposed to ozone while exercising included depressed DNA synthesis in lymphocytes and decreased activity of lymphocytic membrane receptors. The significance of these findings on increased susceptibility to disease continues to be studied to establish a data base allowing for rational policy decisions.
- Development of techniques to quantify pharmacologically-defined airway responses to inhaled pollutants in clinical studies. A bronchial challenge mist generator for airway reactivity measurements was also developed which will simplify these techniques. Both of these major developments are necessary to determine the effects of pollutants on populations of sensitive individuals such as asthmatics. This capability will also be used in studies on noncriteria pollutants.
- Completion of data collection in an epidemiological study in Los Angeles attempting to link pollution from photochemical smog with incidence of acute respiratory disease. The results are being analyzed and are expected to be published in 1980.
- Completion of data collection in Utah which relates levels of several air pollutants to chronic and lower respiratory disease. Reports on this study are expected in 1981.

- Improved management of the analytical complexity of environmental epidemiological studies. An on-going collaborative study between universities and mathematical society institutes to develop improved statistical methodologies for data analysis in epidemiological studies has produced a number of technical reports. In many cases, the reports will significantly reduce the cost of those studies.

Noncriteria Pollutants

Research in this area deals with air pollutants for which no NAAQS have been set and with selected trace inorganic and organic substances. Its purpose is to determine whether the regulated pollutants are controlled appropriately and whether the unregulated pollutants should be controlled in order to protect human health.

In 1979, the major accomplishments in the noncriteria pollutants area included:

- Short-term and intermittent studies were completed on normal animals and animals with simulated upper and lower respiratory disease to determine the effects from exposure to various fine particulate ammonium sulfate species. Results have shown few effects upon pulmonary function or upon biochemical, hematological, or immunological parameters. These data have been provided for use in the development of criteria documents. Further studies will follow.
- Animal models of human respiratory diseases have been developed. These models represent conditions such as emphysema, hypertension, congestive heart failure, asthma, and pulmonary fibrosis and reflect the increased sensitivity to pollutant exposure seen in some humans. They will be used in studies on both criteria and noncriteria pollutants.
- A clinical study was completed to assess acute effects from inhalation exposure to low levels of sulfuric acid mist at various concentrations. This study was undertaken as a follow-up to a 1978 pilot study. Results indicated no significant decrements of pulmonary function.

- A human exposure chamber was modified to permit the evaluation of biochemical and immunological factors during the performance of clinical studies.
- A study of asthmatics in Denver, Colorado, demonstrated little association between elevated particulate levels and asthma symptoms.
- Evaluation of pulmonary function among children in Montana in relation to elevated particulate levels demonstrated no significant differences in effects in the various exposure categories.
- Data collection for an epidemiological study on changes in pulmonary function in school children as a function of varied sulfur dioxide, nitrogen dioxide, and particulate levels has been completed in Akron, Ohio. Data analyses are currently underway.
- Data on morbidity and mortality rates in several Illinois cities were studied in relation to particulate pollution levels. In some cases, positive associations were found between particulate pollution levels and health effects, but in other cases those associations were not found. Further studies are needed to clarify the relationships observed.

Transportation Sources

This research analyzes emissions from mobile sources. The major objective is to provide information about health effects for decisions on certification of gasoline and diesel vehicles. Current emphasis is on diesel engines, with studies being conducted to determine the extent to which diesel exhaust is carcinogenic. Specific accomplishments during 1979 include:

1. An intratracheal instillation study of diesel particulates, alone and in combination with ferric oxide, has indicated a variety of responses in the trachea and lungs of treated animals.
2. The mutagenic response of several microbial bioassay tester strains was compared for exposures to diesel soot extract,

cigarette smoke condensate, coke oven soot and extract and roofing tar soot and extract. The results suggested that a large portion of the mutagenic activity from diesel samples was due to nitrogenated compounds.

3. A battery of mammalian short-term bioassays (confirmatory mutagenesis/carcinogenesis) was used to ascertain the relative response to mobile source and comparative emissions. Preliminary analyses suggest that the potency of the diesel samples generally falls within the range of the potency of the comparative samples which included coke oven emissions, roofing tar, and cigarette smoke condensate.

4. A study of the teratological effects induced in rats and rabbits by inhalation of whole diesel exhaust was completed. The results were negative.

5. Preliminary studies of inhalation of diesel exhaust have shown voluntary activity was decreased in exposed rats. There were also indications that development may be delayed in offspring.

6. Mutagenicity induced in whole animals as measured by three different indicators in mice was not detected subsequent to inhalation of diesel exhaust.

7. An international symposium on the health effects of diesel emissions was held. Researchers from England, Germany, Italy, Sweden, Japan, and the United States presented their most recent data on the characterization of diesel engine emissions and the biological response of exposures to whole exhausts and its components.

TERRESTRIAL ECOLOGY EFFECTS OF AIR POLLUTION

Air pollution effects research continues to assess the impact of air-borne pollutants on the environment and on important biological processes. Research emphasis is focused on the criteria pollutants. This

effort includes studies related to pollutant exposures of agricultural crops and forest vegetation as well as evaluations of detrimental perturbations within ecosystems. The data generated from these activities form the basis for updating air quality criteria documents on which the secondary ambient air quality standards are based and provides information for other Agency decisions in support of the "welfare effects" mandate of the Clean Air Act.

Major accomplishments in 1979 include:

- Studies show that a wide array of important agricultural crops are seriously impacted by sulfur dioxide fumigations below the present standards. The yield of one variety of winter wheat was reduced 22 percent. Both yield and nitrogen fixation were decreased in a leguminous forage crop. The rate of photosynthesis in many plants is depressed by short-term sulfur dioxide exposure. Some plants exposed to sulfur dioxide were found to emit hydrogen sulfide gas to the atmosphere. Other completed studies show that low concentration of sulfur dioxide during the winter season significantly suppresses subsequent growth and development of certain coniferous forest species.
- Research has determined that night-time exposures of plants to realistic concentrations of nitrogen dioxide during their entire life cycle do not suppress growth.
- Research studies show that the concentration threshold at which ozone causes injury to plants is increased by limited water availability. An ecosystem study has demonstrated that photochemical oxidants impacting a coniferous forest in southern California have caused a myriad of deleterious effects ranging in ecological scale from altered physiological processes to a regression in successional patterns in higher plant life. Process models are being developed which will predict the magnitude and direction of change over time under various pollutant regimes.

- Hydrocarbon effects investigations have shown that pine forests emit significant quantities of monoterpenes, an ozone precursor, and that the rate of emission increases exponentially with temperature. Isoprene, another oxidant precursor, is emitted by a wide range of crop and forest species. These two hydrocarbons may contribute significantly to pollutant air-mass loadings. However, it should be pointed out that these pollutants can also act as O_3 scavengers so the net effect on O_3 formation may be minimal.
- A national crop loss assessment network plan has been completed. This network will supply a data base for predicting the economic effects of sulfur dioxide and ozone on agriculture crops.
- Acid rain studies revealed that 8 out of 28 crops tested showed yield reductions. Yields of the remaining 20 crops indicated no change or slight increases.

TABLE III - 1

Typical Yield Reduction by Weight (at pH 3.0)

Crop	Yield Reduction (%)
Broccoli	25%
Mustard greens	30%
Radishes	56%
Spinach	15%
Blue grass	30%
Clover	21%

SCIENTIFIC ASSESSMENT

The scientific assessment program provides the Agency's regulatory programs with a centralized capability for evaluating information on health and ecological effects from exposure to pollutants and estimating the level of health risk involved. The program is capable of reviewing known information about pollutant effects, interpreting this information, and producing scientific data summaries for subsequent risk assessment.

or other regulatory decisionmaking. The program will also be responsible for maintaining consistency and quality among the risk assessments prepared throughout the Agency. To ensure this, the program establishes on an as-needed basis Agency-wide guidelines for health and risk analysis, e.g., draft guidelines for conducting risk analysis for both carcinogenicity and mutagenicity. It will also review completed assessments that may be done by other offices within EPA for conformance to Agency guidelines. The program conducts risk assessments and prepares health and environmental effect criteria documents for Agency regulatory activities. Typical outputs from the scientific assessment program include: reviews, guidelines, health criteria documents, aquatic effects criteria documents, health assessments, reports on special health/exposure situations, and both preliminary and full risk assessments dealing with the carcinogenic potential, as well as mutagenic toxicity.

In April 1979, the Agency established the Office of Health and Environmental Assessment (OHEA) to expand its health related scientific assessment capability. OHEA incorporated the previously existing Criteria and Effects Assessment Program for Air Quality and the Carcinogen Assessment Group together with new initiatives in criteria and effects assessment for water quality, reproductive effects risk assessment, and exposure assessment.

The Reproductive Effects Assessment Group drafted and circulated within EPA an initial set of guidelines and procedures for conducting risk analyses of mutagenic toxicity. After review and possible revision these guidelines will be adopted for Agency-wide usage.

An Agency-wide work group was convened to assist in the development of guidelines and methodologies for exposure assessment to coincide with the establishment of the Exposure Assessment Group. The development of these guidelines in 1980 for Agency-wide use will serve as a quality control mechanism for the Agency and specifically enhances uniformity and consistency in the application of scientific information for exposure analysis.

The Environmental Criteria and Assessment Office, which supports the Agency's air regulatory program, issued the air quality criteria document on carbon monoxide. These reports are required under Section 109 of the Clean Air Act, as amended.

TRANSPORT AND FATE

A first generation photochemical air quality simulation model designed to predict pollution concentrations on the regional scale was developed and delivered to EPA during 1979. This model, which has been under development since 1976, will be used in assessing the impact of the long-range transport and transformation of ozone and its precursors for the Northeast. This work represents an integral part of the total photochemical oxidant transport and fate program to assist the oxidant 1982 SIP evaluation/revision activities.

Scientific results obtained from the summer 1978 field study in the Houston area were presented in a special conference. At the conference, technical information was presented on the chemical and physical characterization of photochemical oxidants and aerosols found in the Houston atmosphere. This information describes the contributions from both man-made and natural sources, historical air quality trend analyses, and air quality modeling studies.

A report was prepared that describes meteorological conditions that are associated with high ambient ozone and sulfate concentrations. The study is based on a summer air pollution episode that occurred in the eastern portion of the United States. This study will contribute to the overall understanding of the atmospheric conditions that lead to extremely high levels of pollution.

A report was prepared that describes the application of wind tunnel experimentation to assessing the air quality impact from a power plant located in complex terrain. The data collected from a field study, which was conducted on a coal-fired power plant located in the Clinch River area, were compared to wind tunnel results. This comparative study will be used to develop more accurate air quality simulation models to assess the impact of stationary source pollutants emitted in complex terrain.

CHARACTERIZATION AND MEASUREMENT METHODS DEVELOPMENT

In the area of mobile sources research, a manual of measurement methods was published for 12 unregulated pollutants in the tailpipe emissions of passenger cars. These methods will support the implementation of Section 202(a)(4) requirements on these pollutants. A report required under Section 403(g) of the Clean Air Act, as amended, "Emissions of Sulfur Bearing Compounds from Motor Vehicles and Aircraft Engines," was completed and transmitted to Congress during 1979.

For stationary sources, a special sampling device was developed to allow the measurement of free sulfuric acid emitted in the flue gas from coal- and oil-fired boilers. The device separates the sulfuric acid from other primary sulfates and was used to show that free sulfuric acid may be as high as forty percent of the primary sulfate emissions.

MONITORING

Stationary Source Emissions Measurement

Experimental work has either been initiated or completed in 1979 for the following: NO_x emissions from stationary sources; benzene emissions from maleic anhydride and styrene manufacturing plants; and new design specifications for flow requirements to obtain valid stack samples. The development of system performance specifications for the evaluation and validation of continuous emission monitors (CEM) for use in stack monitoring was continued. Emphasis was placed on CEM systems for CO and hydrogen sulfide (H_2S) for use in petroleum refineries.

Mobile Source Emissions

Emphasis was placed on monitoring diesel particulates. Field studies were conducted in the New York Port Authority Bus Depot to assist health studies in diesel particulates. The mobile source emission study in Los Angeles was continued to determine egress of mobile source pollutants from expressways and to determine the proper siting of equipment to support mobile source monitoring.

Ambient Air Measurements

The first 70 monitoring stations for the Inhalable Particulate Network (IPN) have been installed and are operating. A new data management system for this effort was developed and is operable. A new size selective hi-vol air sampler was developed for use on the IPN to augment the use of the dichotomous sampler. Two new sites were added to the National Forest Ozone Study. An in-house capability to monitor and measure vaporous organic compounds in ambient air was developed and placed into service. This system will have great applicability in determining organic emissions from hazardous waste dump sites. A plan to conduct exposure monitoring for ambient air pollutants has been developed.

Quality Assurance

The states have begun to implement the quality assurance portion of the new monitoring regulation (see Chapter II). Additional grant funds have been made available for this proposal. In addition, an EPA Office of Research and Development quality assurance program to assist the states to implement the provisions of the new State Implementation Plan monitoring and quality assurance regulations has been established and is ready for use by the monitoring community. The development of a quality assurance program for use of continuous emission monitoring in power plants was initiated, a quality assurance audit program involving numerous (over 100) participants for both ambient air monitoring and stationary source monitoring was continued, and a nationwide mandatory quality assurance program for air pollutant measurement was initiated. The Federal Reference and Equivalent Method Program was expanded and now includes 13 methods for monitoring SO_2 , 5 methods for CO , 11 methods for O_3 , 12 methods for NO_2 , 1 method for TSP, and 1 method for lead.

IV. STATUS OF STATE IMPLEMENTATION PLANS (SIPs)

In the 1970 Amendments to the Clean Air Act, Congress directed EPA to establish primary national ambient air quality standards (NAAQS) to protect the public health and secondary NAAQS to protect the public welfare. Congress also directed the states to develop and adopt SIPs to attain and maintain these standards. In 1971, EPA promulgated NAAQS for sulfur oxides, particulate matter, carbon monoxide, ozone (originally called photochemical oxidants), and nitrogen dioxide. SIPs were developed and placed into effect. To meet statutory deadlines, the NAAQS were to have been attained in most regions by 1975, with some extensions until 1977.

By 1976, it became apparent that, despite significant progress, SIPs were inadequate to achieve the NAAQS in many areas of the country. EPA, therefore, issued numerous calls for states to revise their SIPs to provide for attainment. Questions also arose as to whether, and under what circumstances, new stationary sources might legally be permitted to construct in areas where the NAAQS were not being met. In response to these questions, EPA published its Emission Offset Interpretative Ruling. This ruling allowed new construction in areas where NAAQS were violated as long as stringent conditions were met that would assure further progress in attaining the standards.

In August 1977, Congress amended the Act to (among other things) establish a statutory approach to permit growth in polluted areas, while requiring attainment of the NAAQS by specific deadlines. Congress first instructed each state to list those areas where NAAQS were still not attained as of August 7, 1977 (nonattainment areas) and instructed EPA to promulgate the list with any necessary changes. Each state then had to submit a SIP revision by January 1, 1979 providing for attainment of the NAAQS as expeditiously as practicable for primary standards but no later than the end of 1982 (or the end of 1987 for areas with particularly

difficult ozone or carbon monoxide problems). Congress also provided that EPA's Offset Ruling would govern new source construction until July 1, 1979; after this date, proposed major sources would be reviewed under the provisions of a revised SIP approved by EPA.

A list of nonattainment areas was promulgated on March 3, 1978 with some subsequent modification. SIP revisions were required for these areas by January 1, 1979.

By the end of 1979, 50 of the 51 states and territories needing plan revisions had made submittals. Thirty-nine of these were complete plan revisions while 11 were partial. Notices of proposed rulemaking (either complete or partial) have been published in the Federal Register for 45 states. In addition, EPA has published a proposal of West Virginia's draft plan.

Final action had been taken on three complete plans by the end of 1979: Wyoming, Colorado, and South Dakota. In addition, final action was also taken on portions of four other state plans: Georgia (TSP, O_3), Alabama (TSP, O_3), Texas (Inspection/Maintenance), and Minnesota (St. Cloud transportation control measures).

BUBBLE CONCEPT

The Clean Air Act requires that states adopt implementation plans to attain and maintain ambient air quality standards as expeditiously as practicable, but no later than by dates set forth in the statute. In developing these plans, states adopt regulations setting forth emission limits which, when applied to sources contributing to the ambient air problem, are calculated to assure that standards are attained. In making these decisions, states regularly take into account the nature and amount of emissions from each source, the control technology available, and the time required for its installation. However, SIPs are not necessarily as economically efficient as possible nor are regulated companies prompted to seek innovations in control technology.

For this reason, on December 11, 1979, the Environmental Protection Agency published a policy to allow plants to increase emissions where costs are high in exchange for an equivalent decrease in emissions where abatement is less expensive (bubble concept). The policy statement recommends

that the states inform source owners of the availability of an alternative emission reduction approach within the SIP, explain the advantages and conditions of use, and be receptive to proposals from source owners seeking to employ the more cost-effective mix of controls this policy allows.

Under the policy, sources may obtain financial savings by employing more cost-effective mixes of control techniques than current process-by-process regulations allow, as long as total environmental benefits are not reduced. Properly applied, the alternative approach should promote greater economic efficiency and increased technological innovation.

The possible financial savings of the alternative approach will provide an economic incentive to plant managers to develop innovative control strategies. This is one of the few opportunities to provide positive incentives for innovation, and the new control strategies developed in response to the program could be used as a basis for setting tighter standards in the future.

It is important to note, however, the flexibility this policy allows can only be granted in areas where states have successfully demonstrated that they can meet air quality standards by the statutory deadlines. Therefore, EPA will not allow the alternative approach to be used in a way that jeopardizes attaining requirements of the Clean Air Act by permitting degradation of air quality in excess of the SIP requirements or by weakening enforcement. To avoid these problems, the use of the alternative approach is carefully conditioned as described in detail in the body of the policy statement. The policy is intended, and should be interpreted, as an alternative way to expeditiously comply with the SIPs' requirements.

PREVENTION OF SIGNIFICANT AIR QUALITY DETERIORATION

Part C of the Clean Air Act requires the prevention of significant air quality deterioration (PSD) in those areas of the country which meet, or have air quality better than, the national ambient air quality standards. Under the PSD requirements, such clean air areas are classified into three categories. The changes in air quality that are allowed

to occur in these areas above baseline levels are called increments. For sulfur dioxide (SO₂) and particulate matter (PM), the Clean Air Act established specific allowable increments of pollution that vary according to the classification of the area. It also required the establishment in the future of air quality increments or other equivalent means of preventing significant deterioration from the other criteria pollutants (nitrogen oxides, hydrocarbons, carbon monoxide, lead, and ozone).

The PSD review process, which has been administered by EPA since June 1975, focuses on only major new sources and modifications. Major construction, although low in terms of annual numbers, does comprise by far most of the emissions attributed to new sources each year. Approximately 700 PSD permits have been approved since August 7, 1977, with only 2 initial denials (both have since been granted).

Under the current PSD program, major sources are reviewed to ensure that best available control technology (BACT) (determined on a case-by-case basis) will be employed. An air quality review is also necessary for such sources. These air quality reviews typically require an analysis of the source's impact on the applicable NAAQS. This in turn can lead to the need for up to a year's worth of ambient monitoring data. In addition, impacts on soils, vegetation, and visibility must also be assessed. More involved reviews, including an assessment of impacts to air quality related values, are required for sources that would impact Class I areas. Finally, ambient reviews are also required for particulate and sulfur dioxide sources to determine that portion of the PSD air quality increment that has been consumed previously by other sources and to demonstrate that the new source's emissions will be compatible with the remaining portion of the increment.

During 1979, EPA's June 1978 PSD regulations were upheld in part and overturned in part by the U.S. Court of Appeals for the District of Columbia Circuit [see Citizens to Save Spencer County vs. EPA, 600 F.2d 844 (March 1979); Alabama Power Co. vs. Costle, 13 ERC 1225 (June 1979), 13 ERC 1993 (December 1979)]. As a result, the Agency proposed amendments to the PSD regulations in September 1979 which involve changes in the basic criteria for determining which new or modified air pollution sources are subject to the regulations, as well as changes in the

requirements for air quality monitoring, BACT applicability, and calculation of increment consumption. A major impact of the proposed changes in the regulations would be that many previously reviewed sources would no longer be subject to the regulations. On the other hand, the proposed rules would increase the number of pollutants that must be monitored and would require a more comprehensive BACT demonstration. The main features of the proposed PSD regulations include:

- Apply to fewer new pollution sources by allowing sources to take credit for air pollution control equipment in calculating whether source's emissions are greater than the threshold for review.
- Requires a permit only where net emissions increase so that a source can offset increases with reductions at the same plant to eliminate the requirement for permits.
- Require an air quality analysis for each regulated pollutant which the source or modification would emit, not just those pollutants covered by air quality standards under Section 109. Additionally, best available control technology (BACT) would apply to each pollutant regulated under the Act for which there would be a significant net increase.

Upon promulgation of revised regulations in 1980, EPA intends to transfer the PSD program to the states through the SIP revisions process. State assumption of the program will improve the efficiency of review, enabling "one stop" permit processing and faster overall permit review.

MAJOR EMITTING FACILITIES

The Clean Air Act requires that the Administrator submit to the Congress a report on the consequences of implementing that portion of the PSD requirements which relate to major emitting facilities with a potential to emit 250 tons per year or more. The report is to examine the type of facilities covered, the air quality benefits of including such facilities, and the administrative aspect of regulating such

facilities. Due to extended litigation that commenced shortly after the promulgation of PSD regulations in June 1978, and which was only recently decided (December 14, 1979 - Alabama Power Company, et al vs. Costle), preparation of the report has been postponed. This was necessary since the definition of potential to emit was a central issue in the litigation and was, in fact, voided by the Court decision. A revised definition is to be promulgated in June 1980 and EPA expects to submit the report discussed above to the Congress early in 1981.

TRANSPORTATION CONTROL MEASURES

Several of the 1979 SIPs with transportation elements demonstrate improving coordination between the EPA air quality planning program and the Department of Transportation (DOT) transportation planning program. In most ozone and carbon monoxide nonattainment urban areas, specific transportation measures with demonstrated air quality improvements have been developed in accordance with the DOT planning process and have been included in the SIP.

The Clean Air Act [Section 172(b)(10)] requires that all measures in the SIP, including transportation measures, be accompanied by commitments from appropriate governmental bodies which will implement and enforce them. This has been a difficult concept to integrate into the traditional transportation planning and implementation process. However, many areas have solicited and received commitments of varying strength from local, regional, and state entities. In one instance, a detailed intergovernmental transportation programming and implementation schedule was submitted which clearly pictures the status of local, state, and Federal project commitments. Other transportation planning agencies are being encouraged to follow this example so that other agencies and the public can better understand and utilize the transportation programming and implementation process.

In 1979, work began on the preparation of transportation plans for the 1982 SIPs using funds appropriated under Section 175 of the Clean Air Act. On December 26, 1978, the first \$25 million of a total of \$50 million was made available to planning agencies by this jointly administered EPA-DOT program. A small portion of this \$50 million has been

allocated for contractual assistance to state and local agencies in developing the required data base for the 1982 ozone SIPs. At year-end, 75 percent of these funds had been obligated. It is expected that all \$50 million will be obligated by the statutory deadline of September 30, 1980.

VISIBILITY PROTECTION

The Environmental Protection Agency took several actions to meet the requirements of the visibility protection segment of the Clean Air Act. Section 169A establishes, as a national goal, the protection of visibility from impairment by man-made air pollution in Class I Federal areas. The Act requires that EPA promulgate a list of Class I areas where visibility is an important value. EPA must also promulgate regulations and guidelines for the states and Federal Land Managers concerning implementation techniques and incorporation of requirements for making reasonable progress towards the visibility goal in State Implementation Plans. The Act also requires that, where applicable, impacts of proposed new sources on visibility be dealt with through Section 165(d), Prevention of Significant Deterioration.

After consulting with the Department of the Interior, EPA promulgated, in November 1979, a list of 156 mandatory Class I Federal areas where visibility is an important value. At the same time, EPA published "Protecting Visibility: An EPA Report to Congress" and issued an Advance Notice of Proposed Rulemaking for Visibility Regulations.

The Report to Congress dealt with scientific and technical issues relating to visibility and visibility impairment, mechanisms for relating sources to perceived visibility impairment, methods for monitoring visibility, and alternative control approaches. The report concludes that the mechanisms of human perception and the fundamentals of atmospheric visibility impairment are understood reasonably well although some uncertainties remain.

Visibility impairment is the result of light scattering and absorption by particles (mostly fine particles) and to a lesser extent NO₂. Principal categories of impairment include: plume blight near sources and widespread regionally homogenous haze. Important source

categories contributing to the problem include utilities, industrial fuel combustion, smelters, pulp mills, urban plumes, fugitive dust, and managed fires. Visibility in western states declined slightly from 1948-1972 but has improved since then, possibly as a result of smelter emissions reduction. Preliminary subjective assessments of visibility by the Federal Land Managers indicate that roughly two-thirds of the Class I areas have generally acceptable visibility conditions and about one-third have undesirable conditions or a need to evaluate man-made impacts.

The report comments (1) that visibility impairment be defined as any perceptible change in visibility (visual range, contrast, color, or other index from that which would have existed under natural conditions); (2) that determination of whether such impairment is "adverse" or "significant" should require judgments involving Federal Land Managers, states, and the public, possibly on a case-by-case basis; and (3) that certain vistas in Class I areas which extend out of the area should also be protected. Visibility protection programs must deal with complex scientific and technical issues as well as social, psychological, and economic values. EPA recommends a phased approach for visibility protection programs to permit available resources to focus on the most clearly defined problems and to allow for evaluation of strategies when improved information is available. The report also summarizes additional research needed in a number of key areas.

After receiving comments on the Advance Notice of Proposed Rulemaking, EPA will develop visibility protection regulations and guidelines and propose them in the Federal Register in May 1980. The regulations will embody the phased approach recommended in the report to Congress. The first phase deals with visibility impairment that is reasonably attributable to specific sources by visual observations or other monitoring techniques. The approach will permit state control agencies to focus initially on the most clearly defined cases of existing impairment or potential new source impacts and on strategies to prevent future impairment. It will also allow the evolution of additional guidelines, control strategies, and an improved scientific understanding of source impairment relationships.

Certain major sources reasonably anticipated to contribute to visibility impairment in a mandatory Class I Federal area will be required to undergo an analysis leading to possible installation of best available retrofit technology (BART). For power plants greater than 750 megawatts, the BART analysis must be followed pursuant to specific guidelines. The proposed regulations will also require that each affected state revise its State Implementation Plan to include a long-term strategy for making reasonable progress towards the national visibility goal. With respect to new sources, the regulations will rely on the requirements for visibility protection set out in Sections 165(d) and already in place in the PSD regulations promulgated in June 1978. The visibility regulations package, however, will include documents which expand on the guidance provided for PSD determinations. Final visibility regulations are expected to be promulgated in November 1980.

V. CONTROL OF STATIONARY SOURCES

NEW SOURCE PERFORMANCE STANDARDS

The Clean Air Act requires the Administrator to establish national standards of performance for source categories that may cause or contribute "significantly to air pollution which may reasonably be anticipated to endanger public health or welfare." The 1977 Amendments reinforce the Act by requiring the Administrator to publish a list of categories of major sources for which standards have not been established, determine priorities, and promulgate standards of performance for these source categories by August 1982.

During 1979, the list, which identified 59 major source categories for which standards will be set, was promulgated. Standards development work was initiated or continued for facilities within 54 of these source categories with work on the remaining categories planned to begin early in 1980.

Standards were promulgated for two categories--stationary gas turbines and kraft pulp mills [Section 111(d) standard] while a third--utility steam generators--was revised. Standards were proposed for seven categories--glass manufacturing, internal combustion engines, phosphate rock preparation, aluminum plants [Section 111(d) standard], automobile surface coating, lead battery manufacture, and ammonium sulfate production. Standards development programs now underway are planned to result in promulgation of 5 standards and proposal of 14 standards in 1980.

The major regulatory action taken in 1979 under Section 111 was the promulgation in June of the revised standard of performance for new electric utility steam generating units. This standard, which will limit sulfur dioxide, nitrogen oxide, and particulate matter emissions reflects a balance in environmental, economic, and energy considerations. In this respect, it is sufficiently stringent to bring about substantial emission reductions at reasonable costs without significant energy penalties. The standard, through a balance and recognition of varying coal characteristics,

supports the national objective of expanding environmentally acceptable energy supplies without conveying a competitive advantage to any one coal producing region.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP)

In response to the increasing attention which has been directed toward toxic components of air pollution, EPA proposed a "Policy and Procedures for Identifying, Assessing, and Regulating Airborne Substances Posing a Risk of Cancer." In concert with this, EPA published an advanced notice of proposed rulemaking outlining draft generic work practice and operational standards which could be applied quickly to reduce emissions of airborne carcinogens from certain source categories. The proposed policy sets forth criteria pertaining to the identification and listing of air pollutants as hazardous under Section 112 and establishes the basis for identifying minimum control requirements and criteria to be weighed in determining what further control should be required to reduce unreasonable health risk.

During 1979, continuing work was directed toward establishing the carcinogenicity of, and the extent of population exposure to, 43 priority chemicals identified as probable carcinogens. Standards development work continued for coke oven emission sources in the iron and steel industry and for major benzene emission sources in the chemical and petroleum industries. The first of these standards, which are being developed in conformance with the proposed airborne carcinogen policy, will limit benzene emissions from maleic anhydride production and will be proposed in early 1980.

RESEARCH AND DEVELOPMENT OF NEW AND IMPROVED AIR POLLUTION CONTROL TECHNIQUES FOR STATIONARY SOURCES

In 1979, EPA's research of pollution control techniques for stationary sources of air pollution focused on three major areas: control of nitrogen oxides, sulfur oxides, and particulate matter.

Nitrogen Oxides (NO_x)

Two industrial test sites were selected for the demonstration of the low NO_x coal burner. One utility test site will be selected in 1980. In addition, in 1979 it was demonstrated that NO_x emission levels from the low NO_x coal burners are not affected by multiple burner arrays.

An assessment of NO_x control technology for industrial boilers was completed in support of the development of a performance standard for industrial boilers. Field testing was initiated at industrial boilers equipped with combustion modification technology to determine long-term NO_x emission levels.

Bench scale evaluation of low NO_x burner design concepts for residual oil and synthetic liquid fuels from coal and shale was begun in 1979.

Sulfur Oxide (SO_x)

Compliance testing was completed at the dual alkali flue gas desulfurization (FGD) installation at Louisville (Kentucky) Gas and Electric's Cane Run No. 5. The long-term test program was initiated.

The Fourth International Symposium on Flue Gas Desulfurization was held in 1979. Approximately 1000 people attended.

The evaluation of dry sulfur oxide control processes on low-sulfur coal-fired utility and industrial boilers was begun in 1979. Final negotiations were completed to begin the full scale demonstration of adipic acid modified limestone wet scrubbing.

Particulate Matter (PM)

A field sampling program to characterize inhalable particulate matter (IPM) emissions from industrial sources was initiated in 1979 to support the standard setting effort. The existing fine particulate emissions data bank was converted to the inhalable particulate size range. This allowed EPA to make the initial determinations of various emission factors for stationary sources.

A great deal of research effort went into support of the new source performance standards (NSPS). For instance, the technical feasibility of substantially augmenting electrostatic precipitator (ESP) performance by the use of a low cost precharger device suitable for new or retrofit applications was established in 1979. These applications will be required to meet the revised particulate NSPS for utility boilers. In addition, data on costs, performance, and impacts of conventional particulate control devices were developed to support the proposed NSPS for industrial boilers.

An initial assessment of the potential of dust trapping devices to control diesel exhaust emissions of particulate matter was completed in 1979 to support EPA's efforts to set a new emission standard.

EPA developed a means of predicting fly ash resistivity from coal and ash analysis and the performance of electronic precipitators using flue gas conditioning additives. This provided a basis for EPA's Office of Enforcement to establish an interim particulate emission compliance policy.

The feasibility of using felt filter baghouses for industrial boiler flue gas cleaning applications was demonstrated. Phase I evaluation of baghouse usage on a large low-sulfur coal utility boiler was completed. There are increased applications for this technology for low-sulfur coal burning utilities.

A condensation scrubber application on an iron cupola was demonstrated using 30 percent less energy than a comparable conventional scrubber.

Several important international workshops and conferences were held in 1979. A joint workshop with the Republic of West Germany was held on particulate control while a symposium on "Particulate Control and Measurement" was held with the Soviet Union. The Third International Conference on all aspects of particulate control, measurement, effects, and standards was conducted in 1979.

VI. CONTROL OF MOBILE SOURCE EMISSIONS

Title II of the Clean Air Act, as amended in 1977, sets forth an extensive control program for mobile sources, including automobiles, trucks, motorcycles, and aircraft. During 1979, EPA's efforts in the field of mobile source air pollution control were geared to implementing the ambitious mandates of that Act. Specifically, significant progress was made in three different areas:

- Establishment of the regulatory framework required by the 1977 Amendments;
- Intensive activity aimed at implementing and improving basic techniques to assure compliance with motor vehicle emission standards;
- Attempts to deal with emerging challenges and problems for the mobile source program posed by technological developments within the automobile industry.

STANDARD SETTING

Effective with the 1980 model year, the applicable standards for automotive exhaust emissions were 0.41 gram/mile hydrocarbons (HC), 7.0 grams/mile carbon monoxide (CO), and 2.0 grams/mile oxide of nitrogen (NO_x). This marked reduction from the previous years' automotive standards, which was dictated by Congressional action, is to be followed by even more substantial tightening in model year 1981 to 0.41 gram/mile HC, 3.4 grams/mile CO, and 1.0 gram/mile NO_x . Throughout 1979, EPA carefully monitored the automotive manufacturers' capability to meet these revised standards.

Equally important were EPA's efforts to implement Congress' mandate to extend emission controls beyond these basic automotive standards. In order to assure that controls for trucks were as stringent as those for

passenger cars, EPA pursued work on a number of rulemakings during 1979. A final rule providing for a 90 percent reduction in model year 1984 heavy-duty truck HC and CO emissions was promulgated. In addition, preliminary work was carried out on regulations setting new standards for light-duty truck exhaust HC and CO emissions, heavy-duty NO_x emissions, and heavy-duty evaporative emissions. Promulgation of these standards is expected during 1980.

EPA also carried out regulatory work to address special pollution problems related to automobiles. A final rule establishing standards for particulate emissions of light-duty diesel vehicles was promulgated. The unique characteristics of emissions related to vehicles driven at high altitude were acknowledged by the preparation of rules setting interim standards and defining appropriate performance adjustments for such vehicles. EPA started a formal NO_x research program to be carried out by manufacturers, as required by the Clean Air Act. Finally, EPA prepared regulations revising the existing emissions standards for aircraft in order to enhance their enforceability.

COMPLIANCE ASSURANCE

Pre-production certification review is one of EPA's long-standing techniques for compliance assurance for mobile sources. Initiated in 1968, the program involves engineering review of engine families representing all new vehicles sold in the United States. Steps in the process include submission by manufacturers of extensive technical data about prospective vehicles; emissions testing of prototypes by manufacturers; review of engineering data and test results by EPA; and, in certain cases, confirmatory testing of prototypes at EPA's laboratory facility in Ann Arbor, Michigan.

During 1979, EPA proceeded with a series of major changes in the certification program. This regulatory reform allows EPA to devote its energies to those engine families with the potentially greatest air quality impact, while at the same time reducing the paperwork associated with certification, both for manufacturers and for EPA. Manufacturers are given more responsibility to carry out a testing program for those

vehicles with a less significant air quality impact, with a limited review by EPA. It is expected that this reform, once it is fully implemented, will render the certification process more efficient and less burdensome while enhancing its ability to protect air quality.

Another special area of concern for the certification program was the implementation of the parameter adjustment regulation, which had been promulgated in 1978. This regulation aims at easing the problem of in-use vehicle maladjustment by giving manufacturers an incentive to limit the adjustability of vehicle parameters such as idle mixture and timing.

INSPECTION AND MAINTENANCE (I/M)

While the certification problem assesses manufacturers' capabilities of designing vehicles which can meet standards, it does not address the question of in-use vehicles. Throughout the decade, testing by EPA and others has consistently indicated that vehicles on the road fail to meet the standards they were certified to meet. This occurs for a variety of reasons: production variability, fluctuating weather and traffic conditions, tampering with or neglect of a car's emission control system, poor maintenance, use of leaded gas in a car which required unleaded, etc. In order to protect the nation's considerable investment in automotive pollution control equipment, it is essential to devise a strategy to improve the performance of in-use vehicles.

EPA's basic approach in this field was mandated by the 1977 Amendments to the Clean Air Act. All urban areas of the country which do not expect to attain ambient air quality standards for automotive-related pollutants by 1982 must implement a mandatory motor vehicle inspection and maintenance (I/M) program by the early 1980's (December 31, 1980 in the case of decentralized programs, December 31, 1981 for centralized ones). This commitment must be part of each appropriate State Implementation Plan and must be supported by a demonstration of adequate legal authority.

Areas in six states have already introduced operating programs. As of the end of 1979, approximately 50 metropolitan areas in 29 states were obligated to implement I/M programs. Twenty-two of these states

have demonstrated legal authority and have taken at least preliminary steps leading to the initiation of I/M. The other seven states are expected to make commitments to I/M during 1980.

A variety of technical issues need to be solved by EPA before the widespread implementation of I/M. A precise determination of I/M benefits, assessment of testing technology, development of appropriate test cut-points, and training of inspectors and mechanics are just a few of the areas addressed by EPA's technical staff during 1979. The continuing long-term study of an on-going I/M program in Portland, Oregon, is the primary source of data for many of these analyses. This program has provided conclusive evidence that I/M is a very effective and economical emission reduction measure.

With EPA's technical support, all affected cities should be able to implement I/M programs in accordance with the established schedule. It is anticipated that the adoption of I/M in these areas will allow them to demonstrate attainment of air quality standards by 1987, while at the same time, avoiding the possibility of restrictions on growth for stationary sources.

HAZARDOUS POLLUTANTS

In recent years, there has been increasing concern about the potential for the emission of hazardous levels of unregulated pollutants from mobile sources. One result of this concern was Section 202(a)(4) of the Clean Air Act which requires manufacturers to demonstrate that their vehicles do not pose an unreasonable risk to the public health. (Pollutants potentially in the hazardous category include lead, cyanide, sulfides, and amines.) During 1979, EPA worked to establish a framework for the implementation of this section of the Act.

In the short run, one hazardous pollutants issue was of overriding concern--an assessment of the potential health threat posed by diesel vehicles. Preliminary evidence has suggested that particulate emissions in diesel exhaust contain carcinogenic materials. EPA is working to gather and analyze the data with which a determination of the safety of diesel exhaust can be made. Once this determination is made, some

sort of regulatory action may be called for. The diesel issue is particularly important because of the plans of several manufacturers to increase substantially the production of diesel automobiles during the coming decade.

NEW TECHNOLOGY

Recently there have been major advances in automotive technology. The development of electronic components controlling the automobile's internal operations creates many new opportunities for manufacturers. For EPA, this trend can have implications for the adequacy of basic compliance assurance techniques such as certification and I/M. Consequently, EPA undertakes a continual effort to monitor advances in motor vehicle technology.

One of EPA's concerns in this area is the potential of electronic controls to operate as "defeat devices" allowing manufacturers to circumvent the standard certification testing procedures. Associated with this problem is the entire issue of vehicle performance at conditions other than those represented by the official Federal Test Procedure. Several analytical efforts were undertaken in 1979 to assess the extent to which in-use emissions control is vitiated by these factors. Where necessary, corrective action will be taken in future years.

VII. ENFORCEMENT

STATIONARY SOURCE ENFORCEMENT

The purpose of the stationary source enforcement program is to ensure that stationary sources of air pollution are in compliance with emission limitations under State Implementation Plans (SIPs); that new stationary sources are constructed in accordance with applicable new source review (NSR), new source performance standards (NSPS), and prevention of significant deterioration (PSD) provisions; that stationary sources subject to national emission standards for hazardous air pollutants (NESHAP) meet hazardous air pollutant standards; and that all applicable provisions of the Power Plant and Industrial Fuel Use Act of 1978 are implemented.

EPA began its major source enforcement effort (MSEE) in 1978 to ensure expeditious compliance of large recalcitrant sources which had not taken the steps necessary to satisfy the requirements of the Clean Air Act (i.e., SIP requirements, NSPS, NESHAP) and the Clean Water Act. There are, of course, other major sources which once complied but no longer do. These and other situations will not be overlooked, but they are outside the scope of this particular top priority enforcement task.

During 1979, 76 MSEE civil actions and 9 non-MSEE civil actions were initiated against stationary air sources. Also, during 1979, 65 MSEE and 4 non-MSEE civil actions were concluded. Therefore, from the beginning of the MSEE (February 1978) to December 1979, 288 air MSEE civil actions were initiated and 77 of the 288 civil actions were concluded.

Significant Pollution Control Agreements

Consent decrees to bring 33 major stationary air sources into compliance were filed with various U.S. District Courts during 1979. U.S. Steel signed an agreement for six of the company's western

Pennsylvania facilities on July 10, 1979. The agreement will result in a reduction of approximately 22,000 tons per year of particulate emissions from the covered facilities. Prospective civil penalties of \$18,900,000 for violating emission limitations and compliance schedule dates were offset by construction of environmental controls beyond those required under current regulations, resulting in a further significant environmental benefit. On June 1, 1979, U.S. Steel signed a decree that provided for a compliance schedule for its basic oxygen furnace shop at its Chicago facility.

On June 6, 1979, a consent decree was filed to bring Crucible Steel Company's Midland, Pennsylvania, plant into compliance. Crucible will be switching from blast furnaces and coke oven operation to electric arc furnaces and will install control equipment at a total capital cost of \$50,000,000. The modernization and cleanup agreement will result in approximately a 75 percent reduction in SO_2 and TSP emissions from the Midland facility.

Another consent decree was entered by the U.S. District Court for Northern District of Alabama on October 15, 1979, to bring two TVA facilities in Alabama into compliance. A consent decree for eight additional TVA facilities in Kentucky and Tennessee has been lodged with the U.S. District Court for the Middle District of Tennessee, but not yet entered by that Court. These agreements were negotiated with the active participation of the States of Alabama and Kentucky and representatives of ten citizen, health, and environmental organizations. Under these agreements, all TVA facilities are required to meet emission standards according to an expeditious schedule with full compliance at all facilities by the end of 1982. This will mean a reduction of more than 970,000 tons of sulfur dioxide and 85,000 tons of particulate emissions a year.

The settlement requires TVA to install scrubbers at some plants and to burn less polluting coal at other plants. The scrubber requirements will allow TVA to burn Eastern coal, which often has a higher

sulfur content. Particulate air pollution controls are also required where needed. TVA is committed to reducing its sulfur dioxide emissions to about half their present levels.

The Agency, Pennsylvania, West Virginia, and Ohio reached an agreement with Wheeling-Pittsburgh Steel Corporation on a program to bring all of the Company's violating facilities into compliance with air and water pollution control requirements. The agreement will mean compliance by all violating facilities between now and 1982.

Under the agreement, Wheeling will considerably reduce its sulfur dioxide and particulate air pollution emission by installing pollution control equipment and by upgrading existing coke batteries, sinter plants, boilers, blast furnaces and basic oxygen furnaces. Federal civil penalties for violations of the air and water laws have been set at \$4 million but, because of the Company's financial difficulties, they are deferred to be paid out of future profits. Provision also has been made for the company to substitute other environmentally beneficial expenditures instead of penalties.

This agreement was the first multi-state, company-wide agreement EPA has reached with a steel company.

Table VII - 1
Additional Consent Decrees

<u>Company/Facility Name</u>	<u>Date</u>
WSC Corporation - Chicago	12/12/79
Inland Steel	12/7/79
Bethlehem Steel - Johnstown	11/26/79
Moberly Asphalt Main	11/14/79
Bunker Hill	10/5/79
Connecticut Charcoal Company	9/24/79
Brown Company	9/14/79
Kaiser Cement & Gypsum	8/9/79
Arco Polymers (Atlantic Richfield)	6/1/79
Cos Cob Power Station	5/2/79
Ironton Coke Corporation (McLouth Steel)	2/26/79
Manchester Municipal Incinerator	3/15/79
Republic Steel - Howland Street	3/1/79
Main Street	3/1/79
Pine Street	3/1/79
Youngstown	3/1/79

Regulation Development

Regulations were proposed on March 21, 1979, which would establish the procedures by which EPA and the states will assess and collect non-compliance penalties under Section 120 of the Clean Air Act. The regulations also set forth the means by which the states may assume delegation of the noncompliance penalty program. The purpose of these mandatory penalties is to recover the costs avoided by a source in not complying with the Clean Air Act requirements, and thus to remove any economic incentive for noncompliance.

Regulations were proposed on January 31, 1979 to establish the substantive requirements of initial primary nonferrous smelter orders (NSOs) issued under new Section 119 of the Clean Air Act and the procedures to be used in issuing those NSOs. Any smelter receiving an NSO is permitted to defer compliance with the sulfur dioxide emission limitation to which it is subject under an applicable SIP. Initial NSOs may extend through January 1, 1983. A smelter that receives a Section 119 order will be placed on a rigorous compliance program, which includes interim controls, and a research and development program to investigate and to demonstrate control methods that are economically and technologically feasible. The NSO program should accelerate the movement towards compliance for the smelter industry.

Energy

EPA has been working with the Department of Energy (DOE) to ensure that new energy-related sources are constructed in accordance with applicable NSR, NSPS, and PSD requirements. In addition, certain existing power plants and industrial boilers having the technical capability to use coal or another nonpetroleum-based fuel may be required to convert under the Power Plant and Industrial Fuel Use Act and, upon conversion, still meet environmental standards. EPA will be involved in this process to assure that sources converting to alternate fuels do so consistent with applicable environmental requirements.

An example of EPA's effort in this area is the delayed compliance order for New England Power Company's Brayton Point Station, which was promulgated in the Federal Register on November 29, 1979. The order

was issued in conjunction with a prohibition order issued by DOE and will allow the New England Power Company to convert two generating units at Brayton Point immediately from oil to coal. A third unit of the Brayton Point Station will be fully converted to coal by December 1983. These conversions to coal will take place without compromising EPA's obligation to protect public health. The Brayton Point conversion will save approximately 13,000 barrels of oil per day or an average yearly savings of over 4.7 million barrels.

MOBILE SOURCE ENFORCEMENT

The Mobile Source Enforcement program is directed primarily toward achieving compliance with vehicle emission standards, fuel regulations, and mobile source related aspects of State Implementation Plans. The activities of the program include preventing the introduction of uncertified new domestic and imported vehicles into commerce; enforcing both vehicle and engine assembly line emission test activity and the recall, warranty, and antitampering provisions of the Act; developing and enforcing Federal regulations for removing lead from gasoline; and ensuring compliance with transportation control plans, mobile source related vapor recovery regulations, and inspection and maintenance programs.

Recall Program

Section 207(c) of the Clean Air Act authorizes EPA to order the recall of vehicles if a substantial number of any class of vehicles do not conform to emission standards. For the period from October 1978 through September 1979, 1.8 million vehicles were recalled either by direct order of EPA or as a result of an EPA investigation. During that same period, manufacturers voluntarily recalled 100,000 vehicles to correct emissions problems. Twenty vehicle classes are presently under investigation.

In March 1979, an in-use surveillance testing program was initiated. This program is designed to test samples of privately-owned, in-use vehicles of a potentially nonconforming vehicle class. If the results show that an emissions problem does, in fact, exist then a full confirmatory test program is conducted.

The Agency vehicle testing capability for recall purposes was increased during the year by the addition of a second contractor-operated emissions laboratory in Houston, Texas. Combined with EPA's other laboratory in Springfield, Virginia, approximately 1200 emission tests per year can be performed. This will allow EPA to closely monitor the emissions performance of in-use vehicles.

Emissions Standards Waivers

EPA held a public hearing to review a set of requests from several automobile manufacturers for waiver of the 1981 model year carbon monoxide (CO) emission standard. The Agency issued a consolidated decision which granted several waiver requests but denied the majority. EPA also held a public hearing on a second set of waiver requests.

EPA granted a waiver of the 1981 and 1982 oxides of nitrogen (NO_x) emission standard to American Motors Corporation as a small-volume, vendor-dependent manufacturer under Section 202(b)(1)(B) of the Clean Air Act. EPA also held a public hearing to review a set of requests from several diesel automobile manufacturers for waiver of the 1981-1984 NO_x emission standard and has made progress in the review of these requests.

Under Section 209 of the Clean Air Act, EPA granted California a waiver of Federal preemption to enforce its highway cycle NO_x regulation for cars and light trucks. EPA held a public hearing to review California's request for a waiver of Federal preemption to enforce its emission control system warranty regulations. EPA also successfully defended a suit brought by automobile manufacturers and trade associations challenging EPA's decision to waive Federal preemption to enforce its limitations on allowable maintenance for cars and light trucks.

In conjunction with the Department of Justice, EPA sought to extend for a second ten-year period a consent decree from Federal court prohibiting automobile manufacturers from agreeing to exchange information or pool resources in developing emission controls. A Federal District Court denied the government's motion for the extension. The case is under appeal.

Selective Enforcement Auditing

Thirty-seven (37) selective enforcement audits of light-duty vehicle manufacturers were conducted in FY 1979. One manufacturer, General Motors Corporation (GM), failed two audits in April 1979. As a result of the failure, EPA revoked the certificate of conformity of these configurations which prohibited their further production. In addition, GM was ordered to recall and bring into compliance all of the cars of the audit configurations built since the beginning of the model year.

Final action also was taken in a matter involving alleged improper manufacturing, inspection and testing procedures utilized by General Motors during and immediately prior to a selective enforcement audit. EPA referred the matter to the Department of Justice for civil and/or criminal action. GM, in turn, brought a civil suit claiming that EPA engaged in improper and unauthorized procedures in connection with the audit and its subsequent investigation and in connection with the approval of a "running change" requested by GM. GM's suit also challenged the Agency's general authority to take certain actions in connection with any selective enforcement audits. In that suit, EPA counterclaimed that GM had failed to provide certain required information to EPA during the Agency's investigation of the audit.

In the settlement agreement reached between EPA and GM on these claims, GM agreed to pay \$90,000 and to expressly certify as part of each future GM audit that GM has conducted that audit in a specified manner. GM and EPA agreed to release all claims arising out of events relating to and occurring immediately prior to the audit, the audit and its subsequent investigation, and the running change request. GM agreed to dismissal without prejudice of its challenges to certain aspects of the Agency's general selective enforcement audit authority and EPA agreed to dismissal of its counterclaim with prejudice. The Department of Justice determined that criminal prosecution was not warranted in this matter.

Manufacturers tested about 18,000 production cars as part of their own quality control emission testing programs. Based on this testing conducted by manufacturers, no more than 13.5 percent of the vehicles

were exceeding the emission requirement for any one pollutant. Among the domestic manufacturers, 65 engineering changes to production vehicles were made during the model year to improve emission performance. Most of these changes were made as a result of emission problems identified by manufacturers in their own assembly line emission testing programs.

Inspection/Investigation Program

The Clean Air Act authorizes the right of entry into vehicle manufacturing facilities to determine whether manufacturers are complying with Section 203(a)(1) of the Act which prohibits manufacturers from introducing vehicles into commerce which were not covered by a certificate of conformity issued by EPA. These inspections involve the visual examination of production vehicles to determine whether the vehicles are equipped with proper emission related components. During FY 1979, three of these inspections were conducted. In addition, ten investigations were performed to determine if a violation of Section 203(a)(1) had occurred.

Imports Program

Section 203(a)(1) of the Act also gives EPA and the U.S. Customs Service joint responsibility for enforcing the prohibition against importing nonconforming motor vehicles. During FY 1979, EPA monitored the importation of all motor vehicles that entered the United States. Of these, over 1600 were imported under bond pending a demonstration of conformity. Administrative sanctions were imposed against more than 200 importers for noncompliance with the regulations.

Lead Phase-down Program

On December 6, 1973, EPA issued regulations under Section 211 of the Clean Air Act to control the amount of lead additives used in gasoline. The original lead reduction schedule limited the average amount of lead in gasoline to a maximum of 1.4 grams per gallon (gpg) in 1976, 1.0 gpg in 1977, 0.8 gpg in 1978, and finally to 0.5 gpg by January 1, 1979. These regulations were upheld by the Court of Appeals for the District of Columbia Circuit in March 1976.

Because of studies indicating that gasoline shortages could result if the original schedule was enforced, EPA amended the regulations in September 1976. The amended regulations retain the 0.5 gpg standard, but extended the period for compliance with that standard from January to October 1, 1979 in order to permit sufficient time for refiners to install the equipment necessary to meet the reduced lead level without causing a gasoline shortage. The January 1, 1978 standard of 0.8 gpg was suspended if a refiner could show that he was taking actions to procure and install equipment sufficient to ensure that he would meet the 0.5 gpg standard on or before October 1979. In 1978, after EPA review and approval, approximately 78 percent of national refining capacity (10 refineries) was permitted to operate under suspension of the 0.8 gpg lead standard. In 1979, in order to allow refineries to make more unleaded gasoline, the phase-down requirement of 0.5 gpg was delayed until October 1980, allowing each large refinery to comply with a 0.8 gpg lead standard provided the proportion of unleaded gasoline is increased at a sufficient pace to meet the growing demand for unleaded.

Fuel Switching

As a result of numerous inquiries from the public and industry, EPA investigated the extent of fuel switching. Fuel switching is the use of leaded gasoline in vehicles requiring unleaded. In 1978, EPA found that nearly 8 percent of the refuelings of unleaded vehicles were with leaded gas. This year, with the growing fuel availability concerns, EPA intensified its efforts to observe fuel switching, especially in situations of shortages and outages of unleaded gasoline. Further, EPA contracted for a motivational/attitudinal survey to assess the reasons that motorists switch fuel. Additionally, EPA clarified its rule on emergency use of leaded gas in unleaded vehicles and proposed rules for manning self-service pumps in situations of outages of unleaded fuel.

Unleaded Enforcement Program

EPA has responsibility for enforcing Section 211 of the Clean Air Act, relating to the regulation of fuels and fuel additives. On January 19, 1974, EPA promulgated regulations requiring the general availability of unleaded gasoline by July 1, 1974, for use in 1975 and later model cars equipped with catalytic emission control systems.

EPA has established a nationwide fuels enforcement program to ensure that affected retail outlets comply with these regulations. This program includes sampling of the fuel at retail outlets by Regional EPA field inspectors and private and state inspectors under EPA contract, and the analysis of the samples for lead content.

In FY 1979, EPA conducted approximately 15,000 inspections of service stations to ensure compliance with the unleaded fuel regulations. This included inspections through contracts and agreements with state, county, and local government agencies. EPA has issued approximately 280 complaints and has collected \$240,000 in penalties during this period.

Tampering

A total of 43 tampering cases were referred to the Department of Justice in FY 1979. Civil penalties totalling \$32,320 were collected under tampering case settlements and judgments in FY 1979. As part of a new mobile source enforcement initiative, field offices were established in Washington, D.C., and Denver, Colorado. The field office personnel were trained and are actively conducting tampering and fuel switching inspections and investigations of major chains of automotive repair facilities, fleet operators, new car dealerships, and gasoline retailers located in potential inspection/maintenance areas.

Regulation Development

EPA has proposed two sets of regulations under Section 207 of the Act. One set is to establish the emission performance warranty. This warranty will require a vehicle manufacturer to repair, at no charge to the owner, the emission control device or system of each vehicle

which fails an emission inspection and maintenance test that has been approved by EPA, provided the owner has maintained and operated the vehicle in accordance with the manufacturer's written instructions.

The second set of proposed regulations establishes a program under which manufacturers of automotive aftermarket parts, such as spark plugs, air filters, and catalytic converters, can certify that use of their parts will not cause a vehicle to exceed emission standards. Vehicle manufacturers will not legally be allowed to deny emission warranty claims on the basis of the use of a certified part.

EPA is also required by Sections 203 and 207 of the Act to enforce a second emission warranty which has been in effect since the 1972 model year. This warranty requires that every vehicle be free from defects that would cause it to exceed Federal emission requirements for five years or 50,000 miles. EPA has investigated approximately 70 denied warranty claims and has assisted these owners in bringing warranty claims. To ensure that vehicle owners understand their rights under this warranty, EPA has published a public information pamphlet.

COMPLIANCE BY FEDERAL FACILITIES

On October 13, 1978, the President issued Executive Order 12088, "Federal Compliance with Pollution Control Standards," directing the heads of Federal agencies to bring their facilities into compliance with the environmental laws as expeditiously as possible. The President, in issuing the order, reiterated his commitment to the goals of achieving and maintaining a clean environment. The Executive Branch is to provide leadership in that effort.

To ensure that the Presidential mandate is carried out, the new order directs EPA to monitor the Federal facilities' compliance and includes a procedure for EPA, the Office of Management and Budget, and the Federal agencies to use for resolving any disputes about noncompliance. Requests for exemptions from compliance, as authorized by the Clean Air Act, will be reviewed by the President and will be granted only in cases where he finds that national security or the paramount interest of the nation is at stake.

During 1979, Federal facilities classified as major sources of air pollutants made continuous progress toward coming into compliance. As of December 14, 1979, there were 49 of these facilities not meeting applicable air quality standards and emission limitations. Of the 49 noncomplying facilities, 7 have installed the necessary air pollution control equipment and are testing its operation for compliance, 15 are in the process of installing control equipment, and 27 have plans to correct their pollution problems.

THE LIST OF VIOLATING FACILITIES

The List of Violating Facilities, under Section 306 of the Clean Air Act, Section 508 of the Clean Water Act, and Executive Order 11738, is designed to prevent the Federal Government from subsidizing Air and Water Act violators with contract, grant, or loan monies. In 1979, amendments to the Listing Regulations (40 CFR Part 15) were published (44 FR 6910, February 5, 1979) and guidance for use of the program was issued by the Assistant Administrator for Enforcement.

While no additional Air or Water Act violators were listed in 1979, listing proceedings were initiated by EPA with respect to facilities of Sharon Steel Corp. (Farell, PA), Borden, Inc. (Gramercy, LA), and AMAX Nickel (Braithwaite, LA). A facility of Hooker Chemicals (Columbia, TN) was removed from the list when it reached a compliance agreement with EPA.

On December 11, 1979, a U.S. District Court ruled that a company which had been removed from the list had no standing to challenge the regulations (I.T.T. Rayonier vs. U.S., No. 78-275-Civ-J-B, M.D. Fla.)

VIII. LITIGATION IN 1979

PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

Many industrial and environmental groups petitioned the Court of Appeals for the District of Columbia Circuit to overturn the effective date provisions of the June 19, 1978 PSD regulations. (Those provisions appear at 43 Federal Register 26406 [Sections 52.21(i)(2)-(4)].) The Court issued its decision on March 27, 1979. It denied each of the petitions, thereby upholding the effective date provisions entirely.

The central element of those provisions was the general rule that the regulations do not apply to sources for which certain permits were obtained by March 1, 1978, and on which construction "commenced" by March 19, 1979. The environmental groups argued that EPA was applying the new requirements too late. The industrial groups argued that it was applying them too soon. Both sides also raised numerous procedural issues. In upholding the provisions, the Court concluded that the case presented "a relatively happy picture of an agency's attempt to bring harmony and efficiency to a regulatory scheme that in its original statutory conception was badly flawed." [Citizens to Save Spencer County v. EPA, 600 F.2d 844,890.]

On June 18, 1979, the U.S. Circuit Court of Appeals for the District of Columbia issued a preliminary opinion on the substantive issues in the PSD litigation. (Alabama Power Company v. Costle, 13 ERC 1225.) The opinion upheld in part and remanded in part EPA's regulations. The opinion was issued in summary form.

Among the provisions which the Court upheld were those dealing with (i) protection of PSD increments through periodic increment review programs, (ii) limitations on the use of stacks for PSD purposes to good engineering practice stack height, and (iii) EPA's guidelines for modeling sources.

Among the provisions which the Court remanded are the following:

Source Size - EPA's regulations applied to each stationary "source" with uncontrolled emissions of 100 or 250 tons per year, depending on the source category. The Court held that EPA should have based its regulations on controlled emissions.

Definition of Source - The regulations defined "source" as "any structure, building, facility, equipment, installation, or operation (or combination thereof)" located at one site and owned by common interests (emphasis added). The Court held that the definition is inconsistent with the applicable statutory definition, Section 111(a)(3), which provides that a "source" is any "building, structure, facility, or installation" The Court added, however, that EPA had the latitude to define through rulemaking any one of those statutory terms to refer to an entire plant.

Fugitive Emissions - In determining source size, EPA's regulations included all fugitive emissions. The Court held that, while EPA could include fugitive emissions for such purpose, it would first have to go through notice and comment rulemaking.

Geographical Applicability - EPA's regulations subjected major emitting facilities impacting on clean areas to PSD review irrespective of the location of the proposed construction site. Under the Court's ruling, PSD review only applied to sources locating in areas designated attainment or unclassifiable. The Court did, however, carve out an exception for sources locating in a nonattainment portion of one state and affecting an attainment area in a second state.

Modifications - Under EPA's regulations, only those modifications which would result in a gross increase in potential emissions above a certain threshold were subject to PSD review. Under the Court's ruling, all modifications which would result in a net increase are governed by PSD (subject to a "de minimus" rule). Thus, PSD review could be avoided if intrasource offsets were obtained and the source thereby would not experience a net emission increase.

Preconstruction Monitoring - EPA's regulations require that prospective sources monitor against possible violations of ambient standards. The Court's opinion states that these provisions do not go far enough and that additional monitoring is required.

Baseline Date - EPA's regulations established August 7, 1977, as the baseline date for PSD purposes. Under the Court's ruling, baselines are to be pegged to the first major source permit application in an area subject to PSD.

The final opinion, which the Court issued on December 14, reaffirmed all but two of the fundamental holdings in the June summary opinion. The two exceptions relate to geographic applicability and monitoring.

Geographic Applicability. In June, the Court held that the PSD permitting requirements apply in general only to each major stationary source or major modification that would locate in a "clean air area," that is, an area designated under Section 107 of the Act as attainment or unclassifiable for a criteria pollutant. The Court added the exception that PSD also applies to any major source or modification that would affect a clean air area in another state, even if the source or modification would locate in a designated nonattainment area. In its final opinion, the Court concluded that the exception did not have sufficient support in the Act and that PSD permitting requirements can apply only to sources "in" clean air areas. It noted, though, that EPA has authority to require each state in its SIP to prevent and abate adverse impacts on clean air areas, including those in other states.

Monitoring. In June, the Court agreed with the environmental petitioners that the PSD provisions of the Act require preconstruction monitoring for each pollutant regulated under the Act that the source or modification would emit, including any noncriteria pollutant. In the final opinion, the Court refined its holding, concluding that the Act required for noncriteria pollutants merely an analysis of ambient air quality in the neighborhood of the proposed site and that the analysis could consist of monitoring, modeling, or both.

ATTAINMENT DESIGNATIONS

Three circuits of the U.S. Court of Appeals have ruled and split on the procedural validity of EPA's March 3, 1978 promulgation of attainment status designations under Section 107(d) of the Clean Air Act. EPA promulgated the designations without first providing notice and opportunity for public comment. The Agency did, however, provide for comment immediately after promulgation and made numerous revisions to the original designations in response to comments received. The Third and Fifth Circuits found that these procedures violated the requirements of Section 553 of the Administrative Procedure Act because the Agency failed to show "good cause" for dispensing with prior notice and comment and because the post promulgation procedures could not adequately substitute for a chance to comment before EPA's decision had been made. [U.S. Steel Corp. v. EPA, 595 F.2d 207, clarified at 598 F.2d 915 (5th Cir. 1979); Sharon Steel Corp. v. EPA, 507 F.2d 377 (3rd Cir. 1979).]

The Seventh Circuit, however, specifically chose to disagree with the two earlier opinions, finding that the Agency had good cause to promulgate before taking comment because the Clean Air Act established a strict time schedule for the designation process. In addition, the designations were urgently needed to permit the states to begin revising their implementation plans. The Seventh Circuit also noted that Section 307(d) of the Clean Air Act limits the scope of judicial review of certain EPA actions on procedural grounds and found that the Section's prerequisite for invalidating EPA actions had not been satisfied in the case before it. [U.S. Steel Corp. and Youngstown Sheet & Tube Co. v. EPA, 605 F.2d 283 (7th Cir. 1979), cert. denied _____ U.S. _____ (Jan. 21, 1980).] The Supreme Court recently denied a petition for certiorari review of the Seventh Circuit's decision, leaving the conflict among the circuits unresolved.